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STRATEGIC MANAGEMENT OF MANUFACTURING INFORMATION SYSTEMS IN THE 90s: ORGANIZATIONAL AND OPERATIONAL ISSUES

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With globalization of manufacturing and service operations, information systems are becoming increasingly complex. Companies are re-examining their information system strategies from organizational and operational standpoints. From an organizational standpoint, the changes that seem to be emerging are:

- **Strategic Partnerships.** New technologies integrating voice, data, and image provide fresh opportunities to enhance productivity. However, the expertise required to achieve these benefits is often not resident in-house. A growing number of firms are forming strategic alliances with others so that the necessary expertise is acquired and shared without diluting their comparative advantages.

- **Decentralization of Previously Centralized Systems.** There is an increasing trend toward decentralization of decision making within the firm to improve responsiveness, data integrity, and accountability. However, this raises issues regarding the criteria used in deciding what to centralize and what to decentralize (e.g., data, programming, processing). With the economics associated with hardware substantially changing in the last decade, as well as new opportunities being found with local area networks (LAN), the scales seem to be tilting in favor of decentralized systems.

From an operational standpoint, the integration of information flows with the physical flows appears to be a key success factor as firms struggle to achieve just-in-time manufacturing. The key issue in managing such production systems is **integration of physical flows with information flows to form a new information-intensive paradigm.** For instance, in modern flexible vehicle assembly, individual machines are more tightly coupled and interdependent in terms of information flows as well as physical product flows. The integration of the physical and information flows is critical to efficiently manage material flows, to manage quality, and to make product mix decisions. This requirement is made more critical because the informal intuition of seasoned plant managers is rooted in the conventional assembly, which has little resemblance to the complex flows in a modern flexible assembly system.

The common theme that emerges is one of functional area integration brought on by a new set of enabling technologies. Such integration presents a host of challenges and opportunities to the manager and researcher. These challenges are discussed from the perspectives of management practice and future research.